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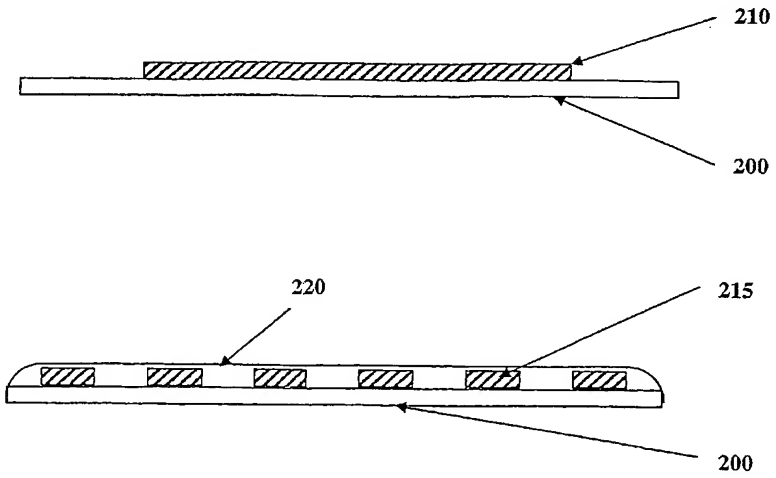
(54) Title: METHODS AND DEVICES FOR HOLDING A COMPOSITION



(57) Abstract: Methods and devices for holding a composition are described. A first embodiment includes a support substrate that supports an array of film segments having an active agent-containing composition, the film segments being attached to the support substrate by a pattern of adhesive. Another embodiment involves a support substrate supporting film segments having the active agent-containing composition, the embodiment including a sealing material that is heat sealed to the support substrate to contain the film segments. A third embodiment involves a substrate holding the film segments in blister cavities; a sealing material is attached to the substrate to contain the segments in the blister cavities. Other embodiments refer to cold sealing support substrates and sealing material, methods of delivering a composition without separating a film segment from a substrate backing, and other alterations to the sealing material.

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Methods and Devices for Holding a Composition

Technical Field

The present invention relates to techniques and devices for packaging, or holding, compositions, and in particular, compositions containing an active agent.

Background Art

In manufacturing pharmaceuticals, cosmetics, food supplements as well as other products to induce some type of effect, an important consideration is how the quantities, or specific doses, of a composition are distributed to the consumer. Techniques of manufacturing the composition should be integrated with methods and devices for holding and/or packaging the composition; this may allow advantages such as streamlining production labor and decreased manufacturing costs. In the particular instance where the composition is embodied with an active agent-containing film, the film may be relatively sensitive, fragile, and easily deformable or damaged. Thus, integrating manufacturing techniques with design considerations for packaging and holding compositions may have the added advantages enhancing product stability and quality. Simultaneously, the risk of product deterioration may be decreased by minimizing exposure of the product to the environment (e.g. light, air, heat, moisture, etc.), isolating the product from contact with people, and facilitating product handling (e.g. preventing the stacking of films that may adhere to one another).

Summary of the Invention

One embodiment of the invention is directed toward a device for holding an active agent-containing composition. The device includes a support substrate; a pattern of adhesive in contact with one side of the support substrate; and an array of discrete film segments removably attached to the support substrate by contact with the adhesive, each film segment including the active agent-containing composition. The side of the support substrate facing the film segments, the array of film segments, and the pattern of adhesive may be sterile. The adhesive may be substantially inert to the film segments, and the

dosage units. The non stick coating may include either a fluorochemical or silicon-based compound. The surface of the sealing material may be attached to the support substrate, the non stick coating not being present at a location where the sealing material is attached to the support substrate. The array of dosage units may be an array of discrete film segments attached to the support substrate. The non stick coating on a surface of the sealing material may be on a plurality of locations corresponding to locations where the sealing material contacts each dosage unit, or may be on one continuous area. Optionally, the array of dosage units are attached to the support substrate by interposed adhesive.

Some embodiments of the invention may be directed toward a device for holding an active agent-containing composition that includes a support substrate; and a dried solution layer removably attached to the support substrate, the dried solution layer having the active agent-containing composition. The dried solution layer may be configured to deliver the active agent-containing composition to a patient by direct contact of the dried solution layer with the patient. The dried solution layer may also include a colorant to visually distinguish the dried solution layer from the support substrate.

Other embodiments of the invention refer to methods of creating the devices in previously described embodiments of the invention.

In another embodiment of the invention, a method for holding an active agent-containing composition includes providing a substrate; forming blister cavities in the substrate; covering the substrate with a film including the active agent-containing composition; displacing film segments into each blister cavity; removing the film unassociated with the segments; superposing a sealing material, the sealing material covering the segments of film and in contact with the substrate; and attaching the sealing material at a plurality of locations where the sealing material and substrate are in contact. The formation of the plurality of blister cavities and the displacing the film may occur substantially simultaneously. The displacing of film segments may include punching the film to displace the film segments into the blister cavities. The sealing material may be attached to the substrate using heat sealing, or by applying pressure at locations where a pressure sensitive adhesive is sandwiched between the sealing material and the substrate. The sealing material may be lacquered aluminum foil. Each segment of film may include a uniform quantity of the active agent.

An alternate method of holding an active agent-containing composition, in accord with an embodiment of the invention, includes providing a substrate with a plurality of

with the patient.

Various embodiments of the invention that include an active agent-containing composition may be utilized in an application that includes at least one of therapeutics, cosmetics, food supplements, wound healings, herbals, botanicals, aromatherapy, veterinary applications, agrochemicals, and cleansing applications.

Brief Description of the Drawings

The foregoing features of the invention will be more readily understood by reference to the following detailed description, taken with reference to the accompanying drawings, in which:

Figures 1A and 1B are a plan view and side view, respectively, of a device for holding active agent-containing compositions, in accordance with an embodiment of the invention, whereby film segments are attached onto a substrate by means of a pattern of adhesive.

Figures 2A – 2C are a series of side views illustrating the steps for making a device for holding film segments to a substrate material without the use of an adhesive, covered by a sealing material, embodiment.

Figures 3A – 3C is a series of schematic side views of the steps for making a device for holding active agent-containing compositions in a blister cavity-formed substrate attached to a sealing material embodiment.

Figure 4A depicts a side view of dosage units that are sandwiched between a support substrate and a sealing material that are attached by a cold seal process around the edges of the support substrate and sealing material, in accordance with an embodiment of the invention.

Figure 4B depicts a side view of dosage units that are sandwiched between a support substrate and a sealing material that are attached by a cold seal process at locations around each dosage unit, in accordance with an embodiment of the invention.

Figure 4C depicts a top view of dosage units that are surrounded by a pattern of adhesive that do not attach the corners of a support substrate, according to an embodiment of the invention.

Figure 4D depicts a top view of dosage units that are sandwiched between a support substrate and a sealing material, the sealing material irreversibly attached to an edge of the support substrate to form a reattachable flap, in accord with an embodiment of the invention.

The composition utilized in a dosage unit may belong to any category (e.g., compositions that are absorbed or applied to a patient by direct contact of a dosage unit with a patient). Some embodiments are preferably drawn to compositions with one or more active agents. An active agent may have a therapeutic effect (e.g., a pharmaceutical agent) or may have activity in other applications such as cosmetics, food supplements, wound healings, herbals, botanicals, aromatherapy, veterinary applications, agrochemicals (e.g., pesticides), cleansing applications (e.g., disinfectants), and other agents, in general. The active agent may be directed toward oral or topical application, such as epidermal, transdermal, or transmucosal (e.g., respiratory tract, oral cavity, vagina, penile surface, etc). The amount of active agent may be the same in each dosage unit and may also constitute a particular dosage of the active agent. Beyond active agents, compositions may also include thickeners, preservatives, colorants, microencapsulants, and other components that may alter the delivery or nature of an active agent.

Embodiments of the dried polymer film segments have thicknesses of 0.03, 0.05, and 0.06 millimeters, each segment having a surface area varying between 0.8 and 3.0 square centimeters. The film may also contain additional components that alter particular physical and chemical properties. For example, a film may include a plasticizer and an antioxidant.

In a specific example, dried polymer film segments include an active agent for treating erectile dysfunction, a polymer, a plasticizer, and an antioxidant. The dried film segments are circularly shaped with a surface area of 2.0 cm^2 and a thickness of 0.05 mm.

Though some embodiments described herein refer specifically to holding film segments with an active agent, these embodiments may also be used to hold other carriers with the active agent including various types of transdermal, epidermal, or transmucosal delivery systems (e.g. patches, tablets, capsules, and pills).

In some instances, sterilization of the device holding a composition helps preserve the composition in a particular state before their use. Thus alternatives to the embodiments described herein include application of methods and techniques known in the art to sterilize compositions, film segments, substrates, adhesives, sealing materials, and other materials. Examples of suitable sterilization techniques include gamma-irradiation and electron beam exposure.

Referring to Figure 1, a support substrate **100** is shown holding a plurality of film segments **115** each having an amount of the active agent. The film segments **115** are

such that it does not adversely affect the chemical or physical nature of the active agent or film segments **115**.

Referring to Figures 1A and 1B, one method for making the device, in accord with embodiments of the invention, includes the steps of: (a) providing a final support substrate **100** with a pattern **145** of adhesive **140** in contact with a side of the support substrate **100**; (b) removably attaching a film **110** with the active agent to the final support substrate **100** through contact with the pattern of adhesive **145** as shown in Figure 1B; and (c) segmenting the film **110** to form an array of film segments **115** attached to the final support substrate **100** through contact with the adhesive **140**. In a particular embodiment of the method, the step of removably attaching the film **110** to the final support substrate **100** includes providing the film **110** with the active agent removably attached to an initial support substrate; bringing the film **110** in contact with the pattern of adhesive **140**; and delaminating the initial support substrate from the film **110**, leaving the film **110** attached to the final support substrate **100**.

In the particular method described above, the initial support substrate may be composed of any material that has the property of adhering to the film **110** more weakly than the final support substrate **100** adheres to the film **110**. The film's adherence to the initial support substrate may be an intrinsic property of the two surfaces, or may be facilitated by the use of an adhesive. Possible initial support substrates include release liners. Release liners for the initial support substrate may include a side, which contacts the film **110**, being treated with either a silicon-based compound or a fluorochemical such as Teflon®. For example, in the case of a silicon-based compound, a polyethylene terephthalate substrate is coated with a mixture containing a polysiloxane with vinyl-functional side chains or hydroxyl-functional side chains; a crosslinker (e.g., a polysiloxane with Si-H functionality); a platinum or tin complex as a catalyst; and optionally solvent and/or additives. The mixture is heated to react the components to form a network of polysiloxanes. Any remaining solvent is subsequently removed. The resulting coating is a thin silicone-like layer.

Segmenting the film **110** into an array of film segments **115** may include one or more processes, non-exhaustive examples being cutting and removing of the film **110**. In a particular segmenting process, kiss-cutting of the film **110** is performed. Kiss-cutting involves making cuts that penetrate the film **110**, while not penetrating the support substrate **100**. The kiss-cutting is followed by removal of a portion of the film from the support substrate **100**, leaving discrete film segments **115** that adhere to the support

hazards that may include physical damage, contamination, light exposure, and other environmental conditions.

The support substrate **200** may be composed of any type of material that allows the film segments **215** to be removably attached to the support substrate **200** and does not cause adverse physical or chemical changes to the nature of the active agent or film segments **215**. Examples of acceptable support substrate materials include paper or plastic sheets. The support substrate **200** may be a release liner. In a particular embodiment, the support substrate **200** is composed of a polyethylene-coated paper. The side of the polyethylene-coated paper that adheres to the film segments **215** is glossy, and not Corona treated, i.e. the side has a smooth, reflective surface that has not been treated to introduce any surface irregularities. This insures that adhesion of the film segments **215** to the support substrate **200** is not so strong as to prevent the segments **215** from being removed without damage. The support substrate **200** may also be made of a transparent material, allowing persons to view the film segments through the support substrate **200**.

One embodiment of a sealing material **220** utilizes a polyester sheet double side coated with polyethylene, the surface of the film that contacts the support substrate **200** being glossy. In particular, this embodiment of the sealing material **220** may be configured to be especially stable. Examples of the embodiment include the ultra-dimensional stable polyester films produced by Loparex. The films are polyester films coated with a layer of low-density polyethylene on each side. These films do not lose moisture when heated, and, therefore, do not change their dimensions upon heating, i.e., they do not tend to curl, and are thus considered very stable liners.

The sealing material **220** may be composed of any material that may be heat sealed to the support substrate **200**. The sealing material **220** may be transparent, allowing the film segments **215** to be seen through the sealing material **220**. The sealing material **220** may also be chosen to be tear resistant.

The sealing material **220** may be heat sealed to the support substrate **200** such that each film segment **215** is isolated from the other film segments **215** as shown in Figure 2C. The sealing material may also be intentionally unattached to the support substrate in particular locations, e.g. the corners of the sealing material, to allow ease of separation of the sealing material from the support substrate by a user.

As shown in Figures 2A – 2D, a method for making the device includes the steps of applying a film **210** having the active agent to a side of a support substrate **200**;

Figure 3B. Examples of suitable materials for the substrate material **300** include, but are not limited to, polyvinyl chloride, a combination of polyvinyl chloride and polyvinylidene chloride, and aluminum.

The formation of blister cavities **305** in the substrate material **300** and depositing of film segments **315** into the blister cavities **305** may be performed using various techniques. In one technique, film segments **315** are provided on a blister cavity-free substrate material. The film segments **315** may be formed and provided on the substrate material **300** utilizing the methods described earlier to form the embodiments depicted by Figure 2. The film segments **315** may be held in place on the substrate material **300** by electrostatic charges. Next, a machine forms blister cavities **305** in the substrate material **300** at positions where film segments **315** are located. The blister cavities **305** may be formed by any technique known to those in the art. In one embodiment, the blister cavities **305** are formed by moving the substrate **300** over an appropriately sized and shaped orifice in a surface of a machine. The substrate material **300** is drawn into the orifice, deforming permanently into a shape confined by the orifice and creating the blister cavity **305**. The process of deforming the substrate material **300** may utilize heat or mechanical force. For example, a vacuum may be used to provide suction to a surface of the substrate to deform the substrate locally to form a blister cavity. In another example, a punch may be used to contact the substrate material surface and deform it locally into a blister cavity. Optionally, the portion of the substrate to be deformed may be heated before deformation takes place to facilitate blister cavity formation. Since each blister cavity **305** is formed adjacent to a film segment **315**, upon cavity formation the segment **315** is simultaneously deposited into the cavity **305**.

In another technique, a film **310** is placed over a blister cavity-free substrate material. A machine forms blister cavities **305** in the substrate material while also displacing a film segment **315** from the film **310** into each blister cavity **305**. In one embodiment, the blister cavities **305** are formed by drawing the substrate material **300** into an orifice, as discussed above. At approximately the same time, film segments **305** are displaced from the film **310** by impinging a punch **330** against the film **310** on a side opposite the substrate material **300**. The shape of the punch may be chosen to create a desired film segment size. The punch **330** may have a surface that impinges upon the film **310** that is flat or curved. The punch contact surface may also have the shape of an annular ring or frame of any desired shape or size. The punch **330** preferably has edges that are sharp enough to cut the film **310**. The punch **330** forms film segments **315** that

embodiment, the method and device are not necessarily limited to the packaging of film segments but may include packaging of active agents in other forms including patches, tablets, and pills.

Dosage units **415** may be held between a support substrate **400** and a sealing material **420**, the support substrate **400** attached to the sealing material **420** by a cold seal process, in an embodiment of the invention as depicted in Figures 4A – 4D. The cold seal process utilizes a pressure sensitive adhesive **440, 445, 446** that reattachably adheres the sealing material **420** to the support substrate **400**, i.e., the sealing material **420** may be separated from the support substrate **400** and subsequently reattached by applying pressure between the two layers **400, 420** at the positions where adhesive **440, 445, 446** is applied. The adhesive **440, 445, 446** may be applied to either layer **400, 420** or both. The adhesive **440, 445, 446** may also have the property of only adhering to itself or a surface with a particular chemical nature. In a particular embodiment, the substrate is composed of a multilaminate of paper/polymer/foil/polymer, such as Type 7340 (Phoenix Health Care Products, LLC, Milwaukee, WI), and the adhesive is a compounded natural rubber latex, such as PHX 3/03AX, PHC 3/03AX, or CSC 3/03AX (Phoenix Health Care Products, LLC, Milwaukee, WI).

As shown in Figures 4A and 4B, the pattern of applied adhesive may surround one or more dosage units, and may be in any pattern that is advantageous. As shown in Figure 4C for example, the adhesive pattern **445** is directed away from the corners of the support substrate **400** to facilitate separation of the support substrate **400** and sealing material **420**. Alternatively, a portion of the support substrate and sealing material may be permanently bonded, while another portion of the support substrate and sealing material are reattachably adhered. For example, as depicted in Figure 4D, the support substrate **400** and sealing material **420** are permanently bonded **447** at an edge to form a reattachable flap **425** with the sealing material, the adhesive pattern **446** serving to reattachably adhere the flap **425** to the support substrate **400.**

Use of a cold seal process may provide several advantages. A consumer may peel the sealing material from the support substrate to obtain one of the dosage units, and subsequently reattach the layers to keep other dosage units protected until use. Thus cold sealing may alleviate the costs associated with packaging individualized dosages. A cold-seal process may also avoid the risk of heat damage that may be sustained to a substrate, sealing material, or dosage unit if a heat sealing process is utilized, as well as need for specialized machinery.

to form a film. The dried film may be removed as a sheet from the intermediate support substrate, and separated into film segments (e.g., cutting the sheet). The film segments are attached to the support substrate (e.g., polyethylene or polypropylene) that is subsequently subdivided. This method can advantageously invoke use of most, if not all, of the film.

In another example, a solution containing the active agent-containing composition may be applied in an intermittent manner to the substrate that is subsequently subdivided. The intermittently applied solution is dried to form the film segments. Intermittent solution application may be by any known conventional method including solution casting, spraying, or printing (e.g., "silk-screen printing" or "gravure-type"). In the specific instance where silk-screen printing is utilized, types of substrates that may be utilized include non-woven material, fabrics, and polyesters that are optionally siliconised. The intermittent pattern of applied solution, and the amount of solution applied for forming each film segment, may vary as required for a particular application. For example, the segments may be shaped to conform to a particular application location such as the lips or eyes. Figures 5A and 5B show two possible layouts of solution application. Forming film segments in this manner saves resources by eliminating wasted film and the use of an intermediate substrate.

Dividing a substrate into a plurality of subdivisions may be performed in a number of manners. In one example, the substrate is cut into separate subdivisions that may be subsequently packaged. In another example, the substrate may be perforated **550** into subdivisions, the subdivisions still connected with each other as depicted in Figures 5A and 5B. The perforations allow a patient to subsequently separate the subdivisions for individual use. In a third example, a patient may simply tear, without preset guidance, the substrate to remove a film segment attached to the torn subdivision.

In embodiments of the invention that utilize a sealing material, the sealing material may have a selected portion of its surface that limits adhesion of the sealing material with the dosage units that may contact the sealing material. As shown in an embodiment of the invention shown in Figure 6A, a surface of a sealing material **620** in contact with a plurality of dosage units associated with a substrate is treated at a plurality of locations **670** with a non-stick coating. When the sealing material **620** is attached to a substrate at location **645**, the locations **670** correspond with areas where dosage units may contact the sealing material **620**. The coating **670** reduces the adhesion of the dosage units with the sealing material **620**, to help prevent the dosage units from being damaged

What is claimed is:

1. A device for holding an active agent-containing composition, the device comprising:

a support substrate;

a pattern of adhesive in contact with one side of the support substrate; and

an array of discrete film segments removably attached to the support substrate by contact with the pattern of adhesive, each film segment including the active agent-containing composition.

2. A device according to claim 1, wherein the one side of the support substrate, the array of discrete film segments, and the pattern of adhesive are sterile.

3. A device according to claim 1, wherein the pattern of adhesive comprises parallel lines.

4. A device according to claim 1, wherein the adhesive is substantially inert to the film segments.

5. A device according to claim 1, the device further comprising a container for holding the support substrate, the pattern of adhesive, and the array of discrete film segments.

6. A device according to claim 1, wherein the support substrate is transparent.

7. A device according to claim 1, wherein each discrete film segment includes a uniform quantity of an active agent.

8. A device according to claim 1, wherein the active agent-containing composition is utilized in an application that includes at least one of therapeutics, cosmetics, food supplements, wound healings, herbals, botanicals, aromatherapy, veterinary applications, agrochemicals, and cleansing applications.

18. A device according to claim 17, wherein the coat of polyethylene is unexposed to Corona treatment.

19. A device according to claim 18, wherein the sealing material comprises a polyester sheet double-side coated with polyethylene, the surface of the polyester sheet heat sealed to the one side of the support substrate being glossy.

20. A device according to claim 19, wherein the polyester sheet double-side coated with polyethylene is configured to be ultra-dimensional stable.

21. A device according to claim 9, wherein corners of the support substrate are detached from the sealing material.

22. A device according to claim 9, wherein the support substrate is transparent.

23. A device according to claim 9, wherein the sealing material is transparent.

24. A device according to claim 9, wherein the sealing material is tear resistant.

25. A device according to claim 9, wherein each discrete film segment includes a uniform quantity of an active agent.

26. A device according to claim 9, wherein the active agent-containing composition is utilized in an application that includes at least one of therapeutics, cosmetics, food supplements, wound healings, herbals, botanicals, aromatherapy, veterinary applications, agrochemicals, and cleansing applications.

27. A device for holding a composition, the device comprising:

a support substrate;

an array of discrete dosage units removably attached to one side of the support substrate, each dosage unit including the composition; and

a sealing material, the sealing material covering the array of discrete dosage units, a surface of the sealing material reattachably adhering to the one side of the support substrate by a pressure sensitive adhesive.

38. A device according to claim 27, wherein the sealing material is tear resistant.

39. A device according to claim 27, wherein each discrete dosage unit includes a uniform quantity of the composition.

40. A device for holding a composition, the device comprising:

a support substrate;

an array of dosage units contacting one side of the support substrate, each dosage unit including the composition; and

a surface of a sealing material covering the array of dosage units,

wherein at least one selected portion of the surface of the sealing material includes a non stick coating where the sealing material contacts the dosage units.

41. A device according to claim 40, wherein the non stick coating includes one of a fluorochemical and silicon-based compound.

42. A device according to claim 40, wherein the surface of the sealing material is attached to the support substrate, and the at least one portion of the surface of the sealing material does not include a location where the sealing material is attached to the support substrate.

43. A device according to claim 40, wherein the array of dosage units is an array of discrete film segments attached to the support substrate.

44. A device according to claim 40, wherein the at least one selected portion of the surface of the sealing material is a plurality of locations corresponding to locations where the sealing material contacts each dosage unit.

45. A device according to claim 40, wherein the at least one selected portion of the surface of the sealing material is one continuous area.

46. A device according to claim 40, wherein the array of dosage units adheres to the one side of the support substrate by interposed adhesive.

54. A method according to claim 51, the method further comprising enclosing the final support substrate, the pattern of adhesive, and the array of discrete film segments in a container.

55. A method according to claim 51, wherein removably attaching the film includes

contacting a film removably attached to an initial support substrate with the pattern of adhesive, the initial support substrate located on a side of the film opposite the pattern of adhesive; and

delaminating the initial support substrate from the film.

56. A method according to claim 55, wherein a side of the initial support substrate in contact with the film is treated with a fluorochemical.

57. A method according to claim 55, wherein a side of the initial support substrate in contact with the film is coated with silicon-based compound.

58 A method according to claim 51, wherein segmenting the film includes removing portions of the film from the final support substrate.

59. A method according to claim 51, wherein the steps are performed by a continuous process.

60. A method according to claim 51, wherein each discrete film segment includes a uniform quantity of an active agent.

61. A method according to claim 51 further comprising:

superposing a sealing material over the array of discrete film segments attached to the final support substrate, the sealing material including a non-stick coating on at least a portion of the surface of the sealing material,

wherein the non-stick coating reduces adhesion between the surface of the sealing material and at least one film segment when the sealing material contacts the at least one film segment.

69. A method according to claim 63, wherein the support substrate comprises a plastic sheet.

70. A method according to claim 63, wherein the one side of the support substrate comprises a coat of polyethylene.

71. A method according to claim 70, wherein the coat of polyethylene is glossy.

72. A method according to claim 71, wherein the coat of polyethylene is unexposed to Corona treatment.

73. A method according to claim 72, wherein the sealing material comprises a polyester sheet double-side coated with polyethylene, the surface of the polyester sheet heat sealed to the one side of the support substrate being glossy.

74. A method according to claim 73, wherein the polyester sheet double-side coated with polyethylene is configured to be ultra-dimensional stable.

75. A method according to claim 63, wherein heat sealing includes leaving at least one corner of the support substrate detached from at least one corner of the sealing material.

76. A method according to claim 63, wherein the segmenting the film includes removing a portion of the film.

77. A method according to claim 63, wherein each discrete film segment includes a uniform quantity of an active agent.

78. A method according to claim 63 further comprising:

applying a non-stick coating to at least a portion of the surface of the sealing material, the non-stick coating reducing adhesion between the surface of the sealing material and at least one film segment when the sealing material contacts the at least one film segment, the non-stick coating applied before superposing the sealing material.

segmenting the film into an array of discrete film segments on the one side.

87. A method according to claim 86, wherein the film is a polymer gel, the method further comprises drying the polymer gel after applying the film to the support substrate, but before segmenting the film.

88. A method according to claim 86, wherein the segmenting the film includes removing a portion of the film.

89. A method according to claim 80, wherein, in applying pressure, the at least one location having pressure sensitive adhesive excludes at least one corner of the sealing material and at least one corner of the support substrate.

90. A method according to claim 80, wherein each discrete dosage unit includes a uniform quantity of the composition.

91. A method according to claim 80 further comprising:

applying a non-stick coating to at least a portion of a surface of the sealing material reattachably adhering to the support substrate, the non-stick coating reducing adhesion between the sealing material and at least one dosage unit when the sealing material contacts the at least one dosage unit, the non-stick coating applied before superposing the sealing material.

92. A method for holding an active agent-containing composition, the method comprising:

providing a substrate;

forming a plurality of blister cavities in the substrate;

covering the substrate with a film including the active agent-containing composition;

displacing segments of film from the film into each blister cavity;

removing the film unassociated with the segments of film;

superposing a sealing material, the sealing material covering the segments of film and in contact with the substrate; and

attaching the sealing material at a plurality of locations where the sealing material and substrate are in contact.

101. A method according to claim 100, wherein the attaching the sealing material comprises heat sealing.

102. A method according to claim 100, wherein the attaching the sealing material includes applying pressure to the plurality of locations, the plurality of locations having a pressure sensitive adhesive between the sealing material and the substrate.

103. A method according to claim 100, wherein the active agent-containing composition is utilized in an application that includes at least one of therapeutics, cosmetics, food supplements, wound healings, herbals, botanicals, aromatherapy, veterinary applications, agrochemicals, and cleansing applications.

104. A method of applying a composition in a dosage unit to a dermal surface of a patient comprising:

providing the dosage unit including the composition on a side of a final substrate that is larger in area than the dosage unit;

holding the final substrate without touching the dosage unit;

bringing the final substrate toward the dermal surface to bring the dosage unit into contact with the dermal surface; and

pressing against the final substrate to apply the composition to the dermal surface.

105. A method according to claim 104 further comprising:

moistening the dermal surface before the step of bringing the final substrate toward the dermal surface.

106. A method according to claim 105, wherein pressing against the final substrate includes rubbing the final substrate to facilitate application of the composition to the dermal surface.

107. A method according to claim 104, wherein pressing against the final substrate includes rubbing the final substrate to facilitate application of the composition to the

114. A method according to claim 113, wherein printing the solution intermittently includes printing the solution on a fabric.

115. A method according to claim 113, wherein printing includes printing using a gavure-type process.

116. A method according to claim 112, wherein the film segments are configured to deliver the active agent-containing composition to a patient by directly contacting the film segments with the patient.

117. A method according to claim 112, wherein the active agent-containing composition is utilized in an application that includes at least one of therapeutics, cosmetics, food supplements, wound healings, herbals, botanicals, aromatherapy, veterinary applications, agrochemicals, and cleansing applications.

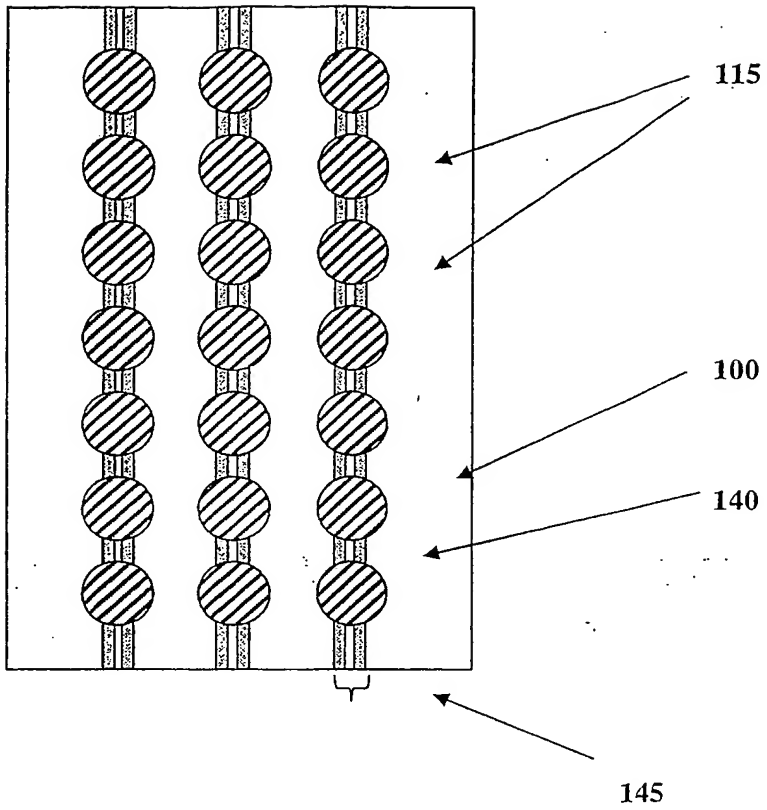

Figure 1A

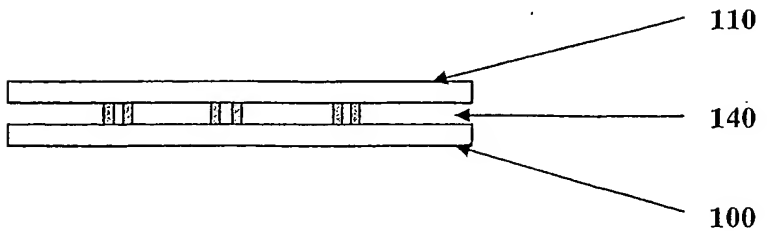

Figure 1B

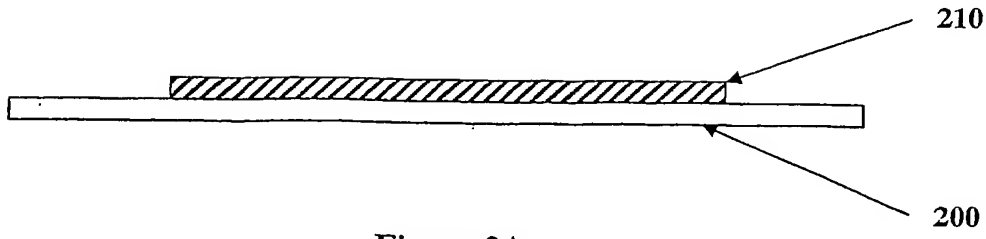

Figure 2A

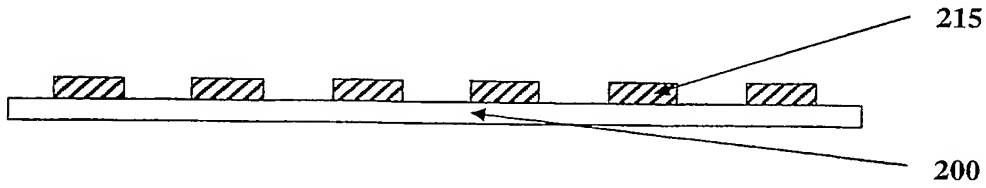

Figure 2B

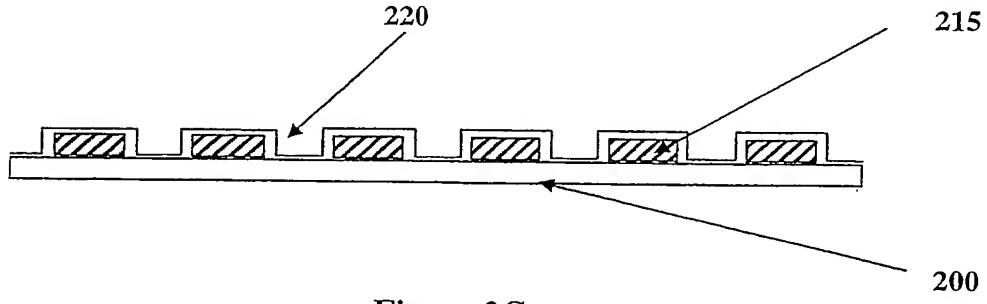

Figure 2C

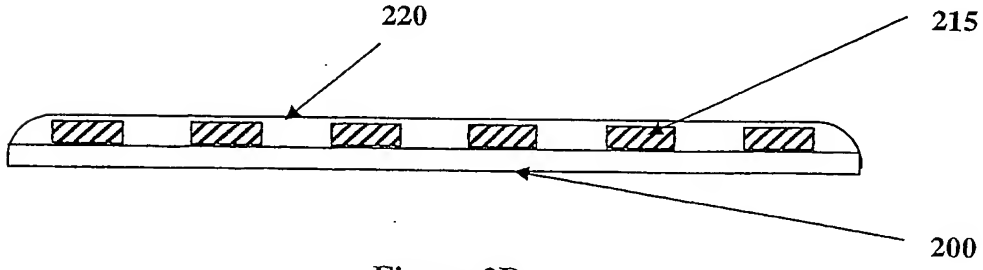

Figure 2D

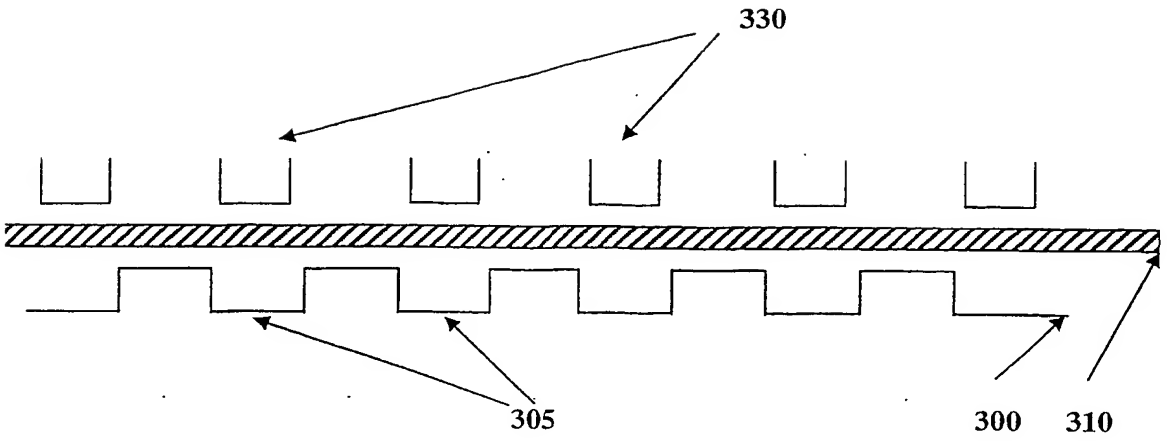

Figure 3A

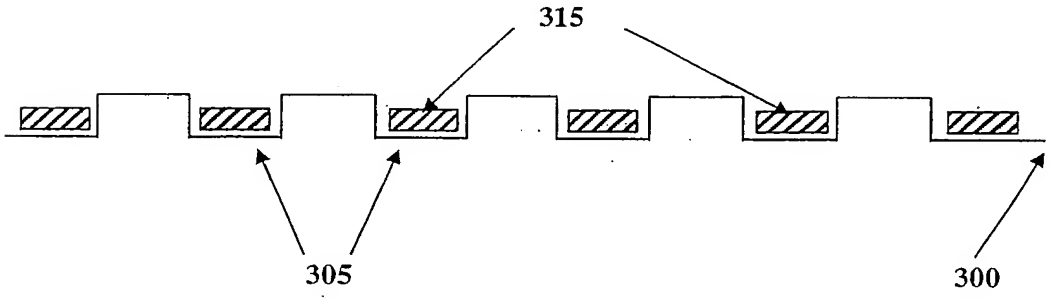

Figure 3B

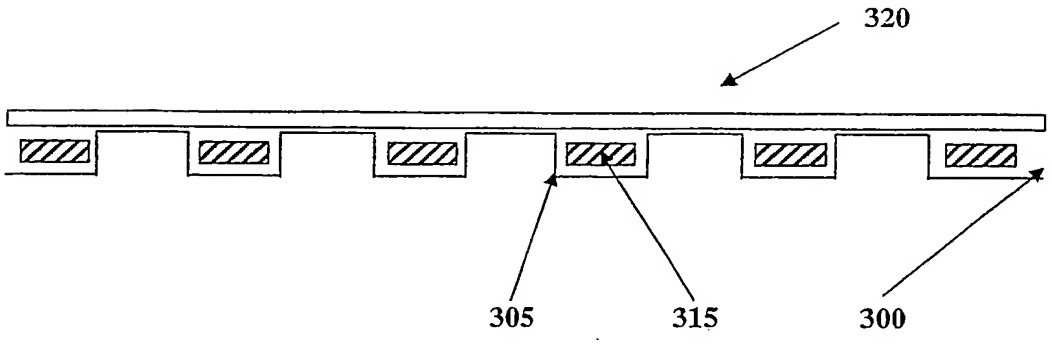

Figure 3C

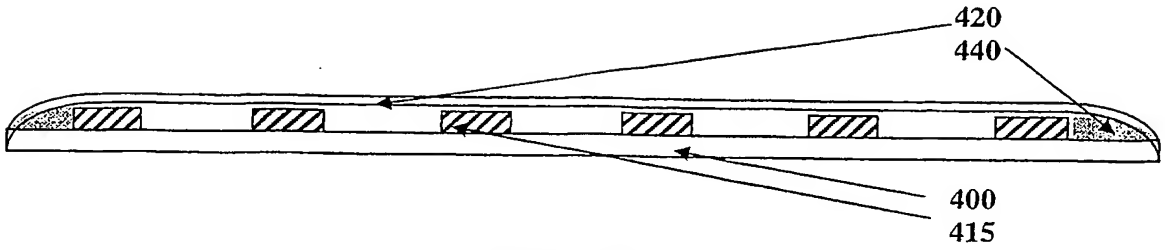

Figure 4A

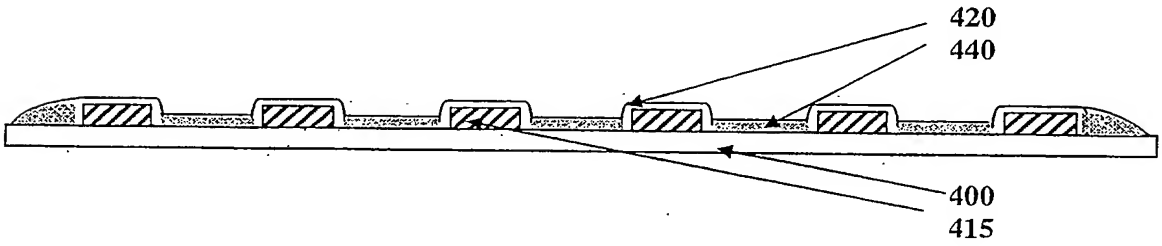

Figure 4B

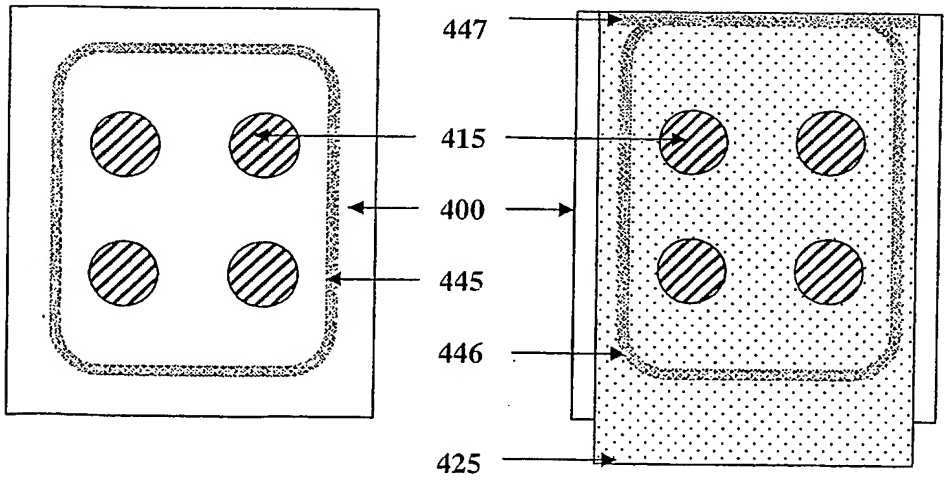

Figure 4C

Figure 4D

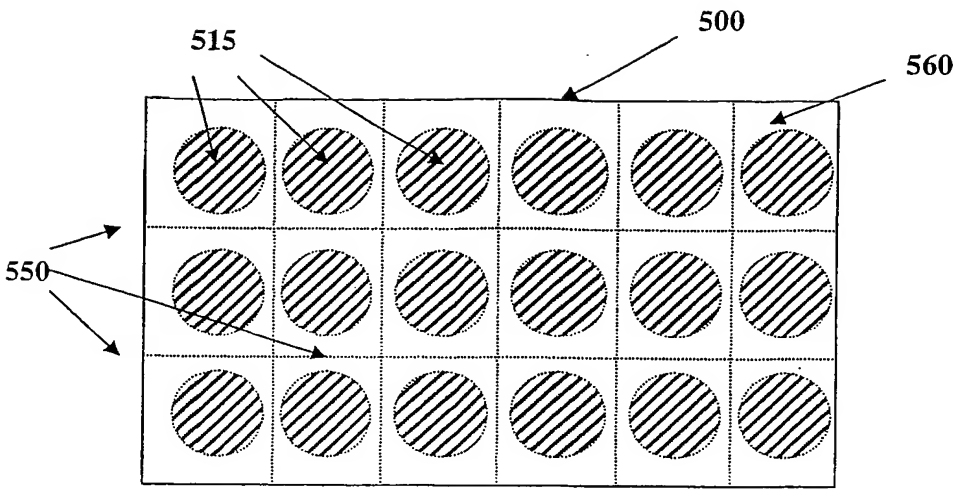

Figure 5A

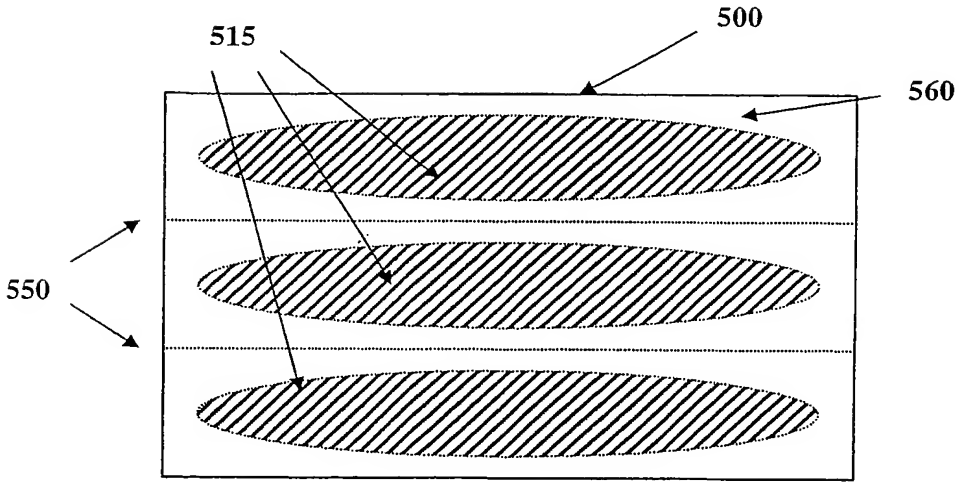

Figure 5B

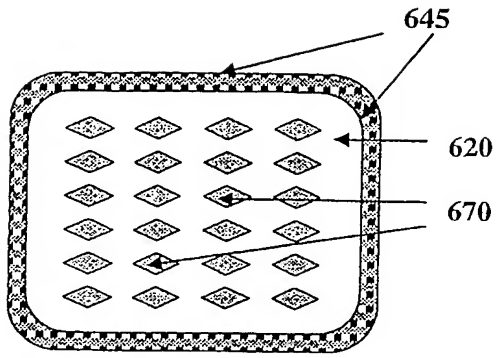

Figure 6A

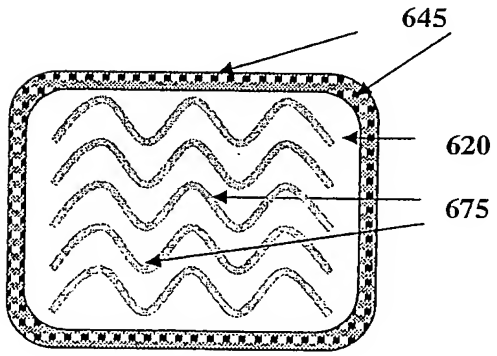

Figure 6B